

CLAIMS

1. A process for dispersing plant seeds in an aqueous medium, the process comprising the steps of

feeding a batch of plant seeds and an aqueous medium into a substantially vertical flow-through device having an axially symmetric round process chamber, which device being connected through a suction line at the bottom portion thereof to a pump and through a delivery line at the upper portion thereof to at least one means for stimulating turbulent flow,

5 priming at least the suction line and the pump with at least an aqueous medium,

dispersing the plant seeds in the aqueous medium by pumping the suspension of the seeds in the aqueous medium through a closed circulation circuit involving turbulent motion and
10 attended heating of the flow of the suspension upstream of the flow-through device and spirally whirling the flow within the device until a product of a predetermined consistency and temperature is obtained,

15 degassing and discharging the product for packaging,

characterized in that

the flow of the suspension is whirled into a spiral of a radius decreasing from top to bottom and is drawn off for circulation through a central opening in the bottom of the device,

the step of degassing is carried out not later than an axially symmetric funnel-shaped depression is formed in the whirling suspension and

20 after the product has become as homogenous and heated throughout as desired, the process is discontinued and the circulation circuit is evacuated for the next process.

2. The process of claim 1, **characterized** in that the radius of the spiral is gradually decreased from top to bottom.

3. The process of claim 1 or 2, **characterized** in that at least a part of the aqueous medium is fed to the circulation circuit prior to feeding the seeds thereto.

25 4. The process of any one of claims 1-3, **characterized** in that the suspension is pumped into the flow-through device in at least two streams at various distances upward from the opening in the bottom of the device.

5. The process of any one of claims 1-4, **characterized** in that the gas removed from the process chamber is replaced with at least an aqueous medium.

30 6. The process of any one of claims 1-4, **characterized** in that the end product prior to the step of discharging is heated to a temperature not exceeding 100°C.

7. An apparatus for dispersing plant seeds in an aqueous medium, comprising a substantially vertical flow-through device comprising a housing normally closed with a

cover and defining an axially symmetric round process chamber communicating with means for discharging gas at the top thereof and with an end product discharge line;

5 a circulation circuit built around a continuous-action pump, whose suction side is connected through a suction line to an opening in the bottom of the housing and delivery side is connected through a delivery line to the inlet to the housing above the opening at least at one point;

at least one means for stimulating turbulent flow incorporated into the circulation circuit upstream of the inlet to the housing to set the flow of a circulating fluid into a turbulent motion; and

10 at least two valves, one to control means for discharging gas and another to control the end product discharge line,

characterized in that

the process chamber is tapered from top to bottom,

15 the angle (α) between the radius of the circumference of the inner wall of the housing and the axis of the delivery line at the point of entry into the housing, wherein the vertex of the angle is substantially coincident with the point of intersection of said axis and the generatrix of the inner wall, is within the range of $30^\circ \leq \alpha < 90^\circ$,

the opening in the bottom of the housing is set true with the axis of symmetry of the housing,

20 the end product discharge line is connected to the suction line,

the cover is removable and has at least one orifice adapted to connect the apparatus to means for discharging gas.

25 8. The apparatus of claim 7, **characterized** in that the process chamber is defined by a cylindrical surface at the upper portion thereof and by a conical surface at the lower portion, both surfaces being smoothly conjoint.

9. The apparatus of claim 7, **characterized** in that the process chamber is defined by a paraboloidal surface.

10. The apparatus of claim 7, **characterized** in that the process chamber is defined by a spheroidal surface.

30 11. The apparatus of any one of claims 7-10, **characterized** in that the angle (α) is within the range of $60^\circ \leq \alpha < 90^\circ$.

12. The apparatus of any one of claims 7-10, **characterized** in that the delivery line is connected to the inlet to the housing at least at two points through individual pipes arranged at different levels.

13. The apparatus of claim 12, **characterized** in that each of the individual pipes is provided with a valve.

14. The apparatus of any one of claims 7-10, **characterized** in that a tubular receptacle for a batch of seeds to be dispersed is coaxially set up within the process chamber above the 5 opening, the upper end of the tubular receptacle being open and flush level with the inlet to the chamber and the lower end thereof being provided with a coaxially arranged plate to slow down the seeds leaving the tubular receptacle.

15. The apparatus of any one of claims 7-10, **characterized** in that an overflow pipe is coaxially set up within the process chamber, the upper end of the overflow pipe being open and 10 above the inlet to the chamber and the lower end thereof extending in annular space relationship with the suction line along a section thereof.